WHAT IS CLAIMED IS:

1. A method for energy-aware software control in a computer system on which one or more applications are running and fashioning a screen, comprising:

establishing in the computer system a display configuration of a plurality of displays, at least two of the displays having varied attributes;

profiling screen usage patterns and their impact on energy consumption by the computer system, the profiling resulting in an energy model; and

determining when to activate the energy-aware software control, wherein the energy-aware software control involves dividing up the screen into sub-screens and matching energy and functionality needs associated with the sub-screens to the plurality of displays based on their respective attributes and the energy model.

2. The method of claim 1, wherein the energy-aware software control affects reduction in energy consumed by the computer system and improves its performance.

3. The method of claim 1, wherein, respectively, the sub-screens are put on view by displays that more approximately match the energy and functionality needs associated with the sub-screens.

4. The method of claim 1, wherein the energy and functionality needs associated with the sub-screens correspond, respectively, to the one or more applications.

5. The method of claim 1, wherein the energy-aware software control coordinates sub-screen interactions and tradeoffs as predefined in the computer system or as selected by a user of the computer system.

6. The method of claim 1, wherein the energy-aware software control modifies display usage patterns.

7. The method of claim 1, wherein the computer system is a mobile computing system.

8. The method of claim 1, wherein the energy-aware software control is designed to accommodate user preferences and to render its impact less intrusive on a user experience.

9. The method of claim 1, wherein the computer system includes a plurality of layers that define its computing environment, and wherein the energy-aware software control is functioning at a particular layer of the computing environment, that layer being an operating system layer, an applications layer, a firmware layer, or, if the computing environment is a windowing environment, a windows manager layer, or any combination thereof.

10. The method of claim 1, wherein the screen is partitioned dynamically, the sub-screens being dynamic segments of the screen.

11. The method of claim 1, wherein the energy model is created dynamically.

12. The method of claim 1, wherein the energy model is created by profiling display usage patterns for various applications under typical deployment conditions.

13. The method of claim 1, wherein the energy model contains data including screen areas that do not require full use of the display functionality for long time periods.

14. The method of claim 1, wherein sub-screens can be determined on the basis of

heuristics derived from parameters in the energy model,

user hints or application-controlled indications, or

dynamic observations of the parameters from the energy model.

15. The method of claim 14, wherein the heuristics can vary with applications.

16. The method of claim 14, wherein the heuristics can be embodied in applications.

17. The method of claim 1, wherein, in a windows-based computing environment of the computer, system the sub-screens can be correlated to windows.

18. The method of claim 1, wherein the sub-screens can be correlated to visual presentation frames.

19. The method of claim 1, wherein the sub-screens can be correlated to cursor positions or icons.

20. The method of claim 1, wherein the energy-aware software control is prompted to provide either automatic control of the displays based on monitored metrics or user-initiated control.

21. The method of claim 20, wherein the monitored metrics include battery current.

22. The method of claim 1, wherein the energy-aware software control can be selectively or entirely turned on or off, by a user of the computer system.

23. The method of claim 1, wherein the energy-aware software control marks portions of the screen to define the sub-screens, and wherein the portions are blocks of pixels.

24. The method of claim 23, wherein the pixel-blocks are marked based on a respective comparison between their required or measured level of display parameters and their maximum level of display parameters, such that a pixel-block is a candidate for control if its required or measured level is lower than its maximum level.

25. A method for configuring a system with a plurality of displays that can support energy-aware software control, comprising:

profiling screen usage patterns and their impact on energy consumption, the profiling resulting in an energy model; and

choosing the number and types of displays for the system based on the energy model and possible display choices, each of the possible display choices being characterized by display parameters, at least two of the displays being chosen to have diverse attributes, each of the possible display choices being considered by determining whether there is a match and a level of

the match between energy and functionality needs of possible sub-screens and the parameters of that display choice, a possible display choice being accepted if the level of match is deemed within a threshold, the plurality of displays being selected from among the accepted possible display choices.

26. The method of claim 25, wherein the level of match is a perfect match or a close approximation that fits within limits defined by the threshold.

27. The method of claim 25, wherein the display parameters include cost, size, power attributes, and quality.

28. A method for energy-aware software control in a computer system on which one or more applications run and fashion a screen, comprising:

establishing in the computer system a display configuration of two or more displays of which at least two have varied attributes;

profiling screen usage patterns and their impact on energy consumption, the profiling resulting in an energy model;

identifying pixel-blocks of the screen to be controlled based on considerations of functionality and energy needs derived from the energy model;

marking the pixel-blocks to be controlled;

matching, respectively, the functionality and energy needs of the marked pixel-blocks to the displays based on their attributes; and

putting the pixel-blocks on view by matched displays.

29. The method of claim 28, wherein the computer system includes layers that define its computing environment, the method further comprising:

establishing a layer of the computing environment at which the energy-aware software control will function.

30. The method of claim 28, wherein the pixel-blocks are identified by comparing their measured or required energy needs with their maximum possible energy needs, wherein pixel-blocks are candidates for being controlled if their measured or required energy needs are lower than their maximum possible energy needs.

31. The method of claim 28, wherein the energy needs can be correlated to any combination of color range, gray-scale, intensity, contrast, user hints, application-controlled indications, heuristics derived from parameters in the energy model, and dynamic observations of the parameters from the energy model.

32. A system for energy-aware software control in a computer system, comprising:

a plurality of displays, at least two of the displays having varied attributes;

means for profiling screen usage patterns and their impact on energy consumption by the computer system, the profiling resulting in an energy model;

means for energy-aware software control configured with means for dividing up the screen into sub-screens and matching energy and functionality needs associated with the sub-screens to the plurality of displays based on their respective attributes and the energy model; and

means for determining when to activate the energy-aware software control means.

33. The system of claim 32, wherein the energy-aware software control means affects reduction in energy consumed by the computer system and improves its performance.

34. The system of claim 32, wherein, respectively, the sub-screens are put on view by displays that more approximately match the energy and functionality needs associated with the sub-screens.

35. The system of claim 32, wherein each of the displays is configured with display technology that includes any one of liquid crystal display (LCD) technology, an organic light emitting diode (OLED) technology, inorganic electroluminescent (EL) display technology, field

emission display technology, multi-tiled display technology and CRT (cathode ray tube) technology.

36. The system of claim 32, further comprising:

a frame buffer accessible by the energy-aware software control means for tracking its contents and learning therefrom a type and a state of visual images, wherein the type and state of visual images factor in the dividing into and the matching of the sub-screens.

37. A system for energy-aware software control, the system being powered by a power source and providing a platform for running programs that fashion a screen, the system comprising:

a plurality of displays, at least two of the displays having varied attributes;

a user interface;

a monitor configured to monitor power metrics of the power source;

an energy model creator using as an input profiling parameters to create an energy model;

means for providing energy-aware software control configured with means for dividing up the screen into sub-screens and matching energy and functionality needs associated with the sub-screens to the plurality of displays based on their respective attributes and the energy model; and

means for activating and deactivating the energy-aware software control, including based on indications from the monitor, the applications and/or the user interface.

38. The system of claim 37, further comprising:

means for allowing a user to turn the energy-aware software control on/off via the user interface.

39. The system of claim 37, further comprising:

means for selectively or fully turning the energy-aware software control on/off.

40. The system of claim 37, further comprising:

means for controlling the plurality of displays operatively associated with display drivers, display controllers and image processors.

41. The system of claim 37, wherein the means for providing the energy-aware software control is implemented as an aggregation or integration of software modules, one or more of the software modules being directed to addressing the screen partitioning and sub-screens tradeoffs and interactions.

42. The system of claim 41, wherein the software modules interact with each other.

43. The system of claim 37, wherein each of the plurality of displays, the user interface, the monitor, the energy model creator, the means for providing the energy-aware software control and the means for activating and deactivating the energy-aware software control, can be configured with any combination of hardware and software modules.

44. The system of claim 37, wherein the power source is a battery and wherein the indication from the monitor is an energy state of the battery.

45. The system of claim 37, further comprising: activity time monitor accessible by the means for activating and deactivating the energy-aware software control so as to prompt activation/deactivation after a predetermined period of inactivity/activity of the energy-aware software control.